

REMARKS

Applicants note that the June 24, 2005 Office Action constitutes the second non-final Office Action following the decision by the Board of Patent Appeals and Interferences, dated August 31, 2004, reversing all claim rejections contained in the final Office Action dated January 30, 2003, and is the fifth Office Action overall. Under 37 C.F.R. §1.198 when a decision by the Board of Patent Appeals and Interferences has become final for judicial review, “Prosecution of the proceeding before the primary examiner will not be reopened or reconsidered by the primary examiner [with exceptions not relevant here] without the written authority of the Director, and then only for consideration of matters not already adjudicated, sufficient cause being shown.” (See M.P.E.P. Part 1214.04, 3rd paragraph.) A Board of Appeals decision issued by a panel of the Board is final if it disposes of all issues raised in the appeal, as indicated in 37 C.F.R. §41.2.

Accordingly, the August 31, 2004 decision by the Board of Appeals with regard to this application was final, and any reopening of prosecution or reconsideration by the primary examiner requires “written authority of the Director”, which may be given only for “sufficient cause”. Applicants therefore request that either i) the Office Action dated June 24, 2005 be withdrawn and this application sent to issue, or ii) this matter be submitted to the Director of Technology Center 3600 for review of the propriety of further prosecution of this

application consistent with 37 C.F.R. §1.198, and that any further Office Action in regard to this matter bear the written authorization of the Director of the Technology Center and a showing of sufficient cause, as required.

Newly submitted Claim 19 has been withdrawn from consideration as being directed to a non-elected invention, based on the proposition that it is directed to a system having a plurality of power consumers and a power supply system including a plurality of individual power sources, while the originally filed claims are directed to a single power consumer and a fuel cell system, as defined in Claim 1. Applicants respectfully traverse the withdrawal of Claim 19.

As noted by the Examiner, Claim 19 is directed to “a power supply system for a vehicle”, while Claim 1, as originally filed is directed to a “decentralized power supply system for a vehicle”. Moreover, while it is true that Claim 19 recites “a plurality of individual power sources”, this phraseology is also consistent with Claim 1 which recites that the decentralized power supply system comprises “at least one fuel cell system and other power generators”. Moreover, while Claim 1 recites that the “at least one fuel cell system” is electrically isolated from “other power generators of the power supply system”, Claim 19 similarly recites that the individual power sources “are electrically isolated and spatially separated from each other”. Finally, Claim 1 recites that the “at least one fuel cell system” is “collocated with the assigned electric consuming device” on or in a structural subassembly of the vehicle in which the

latter is mounted. Claim 19 also recites the same limitation: "each of said individual power sources is collocated with a group of consumers with which it is associated, within the same vehicle subassembly which contains said group of consumers with which it is associated".

As can be seen from the foregoing summary, Claim 19 differs from Claim 1 only in that it recites a plurality of individual power sources, while Claim 1 recites "at least one" fuel cell system. Claim 19 defines a power supply system comparable to that of Claim 1, which includes a plurality of electric consuming devices which are associated with the respective power sources. Applicants respectfully submit that the recitation of a plurality of power sources and power consumers in Claim 19 does not cause that claim to be directed to a different invention within the meaning of 35 U.S.C. §101. Rather, Claims 1 and 19 are directed to the same invention, claiming it with varying degrees of specificity, as Applicants are entitled to do. Accordingly, Applicants respectfully request consideration of Claim 19 on the merits herein.

Claims 1, 2, 5, 17 and 18 have been rejected under 35 U.S.C. §103(a) as unpatentable over Bartel et al (U.S. Patent No. 6,056,076) in view of Klein (U.S. Patent No. 5,540,831); while Claim 3 has been rejected as unpatentable over the same two references and further in view of Terada et al (U.S. Patent No. 4,645,159); Claim 4 has been rejected over the same two patents and further in view of German patent document DE 199 27 518 A1; and Claims 6, 7, 9 and 10

have been rejected over the same two patents and further in view of Mizuno et al (U.S. Patent No. 5,193,635). Finally, Claims 8 and 12 have been rejected over Bartel et al, Klein and Mizuno et al, and further in view of Wilson et al (U.S. Patent No. 6,207,310). Nevertheless, for the reasons set forth hereinafter, Applicants respectfully submit that all claims of record in this application distinguish over the cited references, whether considered separately or in combination.

The present invention is directed to a vehicle power supply system in which, in place of the conventional centralized electric power supply (such as a centrally located battery), a fuel cell system is installed in, for example, each vehicle door, collocated with the electrical consuming device or devices which it supplies. More particularly, the fuel cell system constitutes a separate autonomous power supply, which is "electrically isolated from" other power generators of the power supply system, is dedicated to supplying electricity to an assigned consuming device that is incorporated in a structural assembly of the vehicle in which it is collocated, and constitutes an exclusive source of electric power supply to the assigned electric consuming device.

As a result of this arrangement, the wiring necessary to couple the respective power consuming devices with their associated power supply is significantly reduced, achieving a saving in cabling and weight, as indicated in the specification at page 3, lines 19-22. In addition, due to the physical

collocation of both power consumers and the power source in, for example, a vehicle subassembly such as a door (as depicted in the figure), the latter can be completely assembled (including all internal electrical components therein) separate and remote from the vehicle assembly line, so that it can be installed on the vehicle in a very small number of steps, as indicated at page 3, line 20 through page 4, line 5, and page 12, line 20 through page 13, line 3. In addition, collocation of the power source with the electrical consumer for which it is a dedicated exclusive supply increases the electrical efficiency of the system by eliminating unnecessary resistive wiring. Finally, wear and tear normally associated with the repeated flexing and movement of wiring connections between the vehicle body and door can be eliminated. (See page 13, lines 3-10.)

The Bartel et al reference, on the other hand, discloses an electrical control system for a vehicle having electrically operated locks which, in normal operation, are supplied with electric power by a starter battery 10 and/or an emergency battery 11, via a control unit 2, as indicated in Figure 1. In the event that the starter battery 10 is depleted, removed, or otherwise rendered ineffective, the control unit 2 switches a switch 12 so that the emergency battery 11 is used to supply electric power for the operation of the electric consuming devices, such as for example, electrically operated door locks. (See Column 5, lines 9-17.)

In addition to the centralized emergency battery, the Bartel et al reference also suggests the provision of emergency energy units which include an emergency energy circuit for supplying electric power to operate individual door locks (for example) in the event that both the starter battery 10 and the emergency battery 11 are incapable of performing that function. While the emergency energy sources are thus "decentralized", the disclosure in Bartel et al makes it clear that they are dependent on the central power supply (starter battery 10) for their power. Thus, the specification states at Column 4, lines 11-15 that, "the emergency energy source individual to each lock can be maintained and charged via the generator or alternator of the vehicle, usually directly, or indirectly by being connected to the starter battery which then can thus maintain the charge". Thus, as noted in the specification at Column 5, lines 7-8, the emergency operating units 17 can comprise an emergency energy source 19 "which may be a storage battery", capacitor or an other energy storage source...." Accordingly, in order to maintain the charge on these storage units, the latter "are continuously connected between the starter battery of the vehicle and the motor driver" of the lock or other power consuming device. (Column 3, lines 49-52.) As noted previously, therefore, the emergency energy sources thus derive their energy from the vehicle battery or the vehicle alternator, to which they are continuously attached.

As can be seen from the foregoing brief description, the Bartel et al system differs from the present invention in several fundamental respects, which are

specified in independent Claims 1 and 17-19. In particular, in Bartel et al, the emergency energy sources are not “electrically isolated from other power generators of the power system”, since they are, as noted previously, entirely dependent on the central vehicle electrical supply system to maintain their stored energy. In addition, they are not the “exclusive source of electric power supply” to the assigned electrical consuming device with which they are associated. The latter limitations are recited in each of independent Claims 1, 17 and 19 in the present application, which accordingly distinguish over Bartel et al.

In addition, it is also important to note that the “emergency energy sources” in Bartel et al are not fuel cells, but rather are electric storage devices, such as batteries, capacitors, etc. The distinction is important, because as expressly noted in Bartel et al, the latter are entirely dependent on an outside source to maintain the energy stored therein. Accordingly, it is necessary that they be “continuously connected” with the vehicle central electrical supply system, thereby eliminating all of the advantages achieved by the present invention discussed previously.

The Klein reference is cited as teaching the use of a fuel cell to propel an electric vehicle. For example, as noted in the Office Action, the specification at Column 6, lines 53-55 of Klein suggests that hydrogen gas generated by the hydrogen storage and generation arrangement disclosed therein could be used to

“power a vehicle via ‘a heat engine or fuel cell’”. Such use of fuel cells to power to electric vehicles is of course well known, and Applicants do not claim to have invented such. However, the disclosure in Klein falls far short of teaching or suggesting the use of a fuel cell as an exclusive, dedicated energy supply for an associated, collocated electric consuming device on an ongoing basis during normal operations of the system, as recited in the claims of the present application, and nothing contained in Klein suggests a modification of Bartel to that effect. In fact, since the emergency energy sources disclosed in Bartel are provided only for emergency operation, as a back up to the centralized electric supply, which supplies all load elements in normal operation, any combination of the Bartel et al apparatus with a fuel cell of the type referred to in passing in the Klein reference would not replicate the present invention.

None of the other references of record teaches or suggests a modification of Bartel et al or Klein which would yield the invention defined in independent Claims 1, 17 and 19. In particular, Terada et al has been cited as teaching a power seat adjusting device including a motor, while DE ‘518 has been cited as teaching an air conditioning compressor connected with a fuel cell; Mizuno et al has been cited as teaching a vehicle with a fuel cell system including a reformer and a fuel storage tank; and Wilson has been cited as teaching “fuel cells that form a hydrogen cartridge”. The elements of Claims 1, 17 and 19, referred to previously, which are missing in Bartel et al and Klein are therefore clear and not supplied by any of the latter references either.

Finally, Applicants note that the present application has been the subject of a series of conversations between counsel and the Examiner on at least August 9, 11 and 17. During the most recent of these conversations, following a discussion of the previously cited Bartel reference, the Examiner referred to Newton (U.S. Patent No. 6,349,537) as a possible reference with regard to the claims of the present application. For the reasons set forth hereinbelow, Applicants believe that the Newton patent is not germane to the subject matter of the present application, as defined by the claims as amended above. Nevertheless, in order to assure completeness of the record, Applicants have submitted the Newton patent in an Information Disclosure Statement filed concurrently herewith.

The Newton reference discloses an aircraft propulsion system, in which a main turbine propulsion engine (not shown, except for its compressor 10), is provided in addition to ancillary systems, such as cabin pressurizing pumps and other service, represented by a block 16 in Figure 1, for example. A fuel cell 18 supplies power to either or both of motors 12 and 14, depending on the position of a switch 20. In addition to driving electric motor 12 (which in turn rotates the shaft of the compressor 10 via a gear box 11, as stated for example at Column 2, lines 5-7 and 25-28), an electric motor 14 is provided to drive certain auxiliary components 16, such as pumps for pressurizing the cabin of an aircraft, which are otherwise powered by the gas turbine engine of which the compressor forms a part. (Column 2, lines 11-14.) A fuel cell 18 supplies power to either or both of

the motors 12 and 14, depending on the position of the switch 20. (See Column 1, lines 53-59; Column 2, lines 15-28.) In the embodiment of Figure 2, a single motor 32 is substituted for the motors 12 and 14 in Figure 1, and the switch 20 is electrically connected between the motor 32 and the compressor 10 and auxiliary power unit 16.

The Newton reference differs substantially from the present invention. First, as is confirmed by the specification at Column 2, lines 11-28, the fuel cell 18 is not dedicated to supplying electric power to any consumer or consumers with which it is collocated. In fact, it supplies electric power to either motor 12 or motor 14, and to a pump which pumps carbon dioxide from the fuel cell 18 to the fuel tanks 30, as noted at Column 2, lines 39-41. Nor is there any discussion in Newton which suggests that the fuel cell is collocated with any electrical consuming device for which it is the exclusive source of electric power. Indeed, the Newton reference does not address the location of the fuel cell at all. Rather, it simply discloses a power support system in which the fuel cell can be connected alternatively to either of two motors, while supplying power at the same time to a pump for pumping carbon dioxide. Accordingly, Applicants respectfully submit that all claims of record distinguish over Newton, whether considered separately, or in combination with other references.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If

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there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/48391).

Respectfully submitted,



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